The Week In Engineering and Construction

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New contract form becomes standard in War Department

"Architect-Engineer-Manager" contract form, combining features of lump sum and fee contracts, will be used on most of the new munitions plant jobs

The "Architect - Engineer - Manager" type of construction contract is now considered by the War Department as the normal form of contract for use on big munitions plant jobs. This form of contract was developed in the office of the Under-Secretary of War Patterson and was first used experimentally last December (*ENR*, Jan. 1, 1942). It is the brainchild, primarily, of Michael J. Madigan, special consultant on construction matters to the Under-Secretary.

Behind the adoption of this new contract are two objectives. One is to stick as closely as possible to the lump sum rather than the cost-plus-a-fixed fee contract. It is recognized that the necessity for speed often makes it mandatory to start a job before designs are complete, and that in such circumstances no meaningful lump sum price is possible. On such jobs where as much as 60 or 70 per cent of the work is fairly straightforward—road construction, water supply, and the like—it is felt they can just as well be handled on a lump sum basis.

The fee contract, Madigan feels, is often well-adapted to private work, where there is complete confidence between the parties, but on public construction it becomes so enmeshed in auditing and cost accounting as to be almost unworkable.

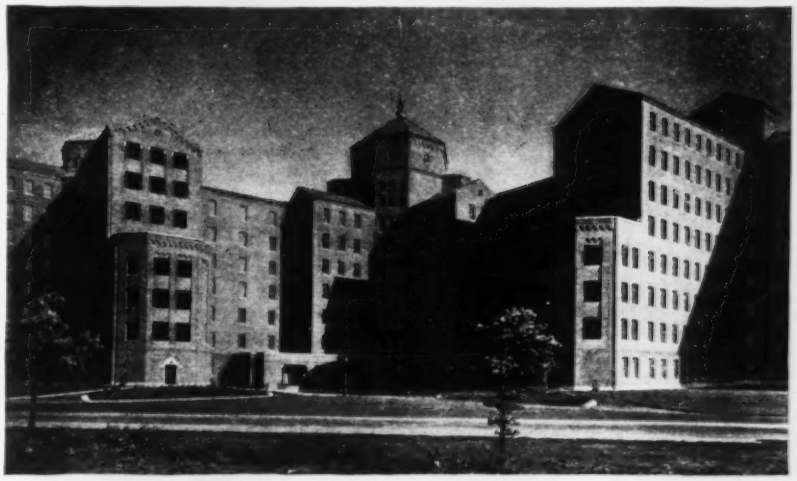
A second motive is the desire to pave the way toward greater use of small and specialist firms of contractors—firms, it is thought, which often can do their type of work more efficiently than can the large, general contractors. Under the usual fee contract, a prime contractor's fee is reduced when he sub-contracts any substantial portion of the work. Thus the tendency has been for general contractors to do the whole job.

The A-E-M contract ordinarily is used on munitions plant jobs for which plans already are made, or similar to existing installations, but where the plans have not yet been adapted to the particular location. A firm is retained as architect-engineer-manager that is adept both in engineering design and construction matters. So far, firms that customarily do business on this basis have been retained, but in future it is expected that suitable engineering firms and contractors will be asked to merge to take A-E-M contracts.

The A-E-M contract is placed on a fee basis. The fee is somewhat lower than would be offered if the general contractor were expected to do the job.

First responsibility of the A-E-M firm is to single out those portions of the work which take longest, are most difficult, and ordinarily, are the hardest to pin down to a firm price. It is this work which determines the length of the job, and the A-E-M immediately tackles it, on the regular cost-plus-fee basis. At the same time, the A-E-M engineering staff prepares schedules of critical materials and equipment so that orders can be placed at once.

Next, the A-E-M engineers attack the design of the other parts of the job. They do this piecemeal fashion, and as fast as some part of the work—a railway, a road, a pipeline—is designed, the blue-



Pilgrim State Hospital unit ready for use

Improvements in design and construction in line with modern psychiatric practice, which tends to de-emphasize the institutional aspect of hospitals for mental disorders, feature the new $3,259,000 addition to the Pilgrim State Hospital group at West Brentwood, L. I. Placing the new building in operation makes Pilgrim State Hospital the largest institution of its kind in New York, with a total capacity for 9,260 patients.

Officially designated as Buildings 81, 82 and 83, the project is of steel frame construction with brick exterior, and is actually a single structural unit designed for the isolated housing of disturbed male and female cases. The central portion, containing a loading platform, kitchen and dining rooms, rises to a height of six stories and a penthouse, and is flanked by two seven-story wings which contain the wards, doctors' offices and waiting rooms.

William E. Haugaard, state commissioner of architecture, said that the exterior appearance of the new addition is characterized by lack of evidence that it is a detention building. Special windows have no bars, but are steel frame containing 7x10 in. panes and ventilators opening inward, limited to a 4½-in. opening. The plumbing, electrical and heating equipment have been designed so that parts are not removable and cannot readily be damaged. The construction contract was held by the Turner Construction Co. of New York City.

prints are turned over to the Corps of Engineers.

Then a separate government contract is placed with specialist firms for each of these pieces of the job. The contract is always for a lump sum and may be placed either competitively or by negotiation. So far they have been placed competitively, but War Production Board Chairman Donald Nelson soon will issue a directive that all war contracts be negotiated rather than advertised.

Although these contracts are directly between the government and the specialist firm, they contain a clause requiring the specialist to work under the direction of the A-E-M firm. For all practical purposes, therefore, the specialist is in the position of a subcontractor.

Net result is that the A-E-M firm undertakes its own forces on a normal fee basis some 30 to 40 per cent of the job, while the rest is split up among many small outfits.

An incidental advantage seen in this arrangement is that it cuts some of the huge Army jobs down to a size where a single, substantial firm can handle them, thus avoiding placing contracts with syndicates of contractors with the attendant possibiliy of internal dissension.

The architect-engineer-manager contract is not being used at present on cantonment work. An appropriation for advance engineering last spring made it possible to have the cantonments in shape for bids when they were needed, so neither a cost-plus or the A-E-M contract had to be considered.

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War road program begins to take shape

A decision is now in the making as to how much road work can be undertaken in this country this spring. Formal certification of war value is about complete on twenty odd strategic-network projects which will be announced within a few days, and more will be coming along soon. Certification is underway on access-road projects using almost the entire $125,000,000 which has been authorized for this purpose.

Including the access road authorization, and also including state matching money on a 75–25 basis, something over $500,000,000 is available in authorized road money that has not yet been put under contract. A major part of this will not be spent now. The states were ordered last December to disregard their previously approved programs, except for jobs actually under contract, and to redraft the programs to meet war needs.

Present procedure is that projects desired by a state are submitted in the usual way for approval by the Public Roads Administration. They must be on the strategic network even to receive consideration. Projects are sent by PRA to the War or Navy Departments for certification as to war importance. To receive such certification, it is by no means sufficient that a project be on the network; it must serve some clearly critical local need. After certification is granted, there is still the final hurdle of a priority rating to be jumped. Ordinarily, however, a certified project will be able to get some sort of rating.

The case of access roads is different. Enough of these federally-financed projects will soon have been approved to exhaust the authorized $125,000,000. The probability is that Congress will soon be asked to authorize further funds for this purpose.

The Public Roads Administration, in recently issued regulations, calls attention to the possibilities of speeding road work by substituting non-critical materials for those on the critical list.

Nottely Dam closed month ahead of schedule

Nottely Dam, a part of the Tennessee Valley Authority's development program, was closed Jan. 24, almost exactly one month ahead of the original schedule.

Located on the Nottely River, a tributary of the Hiwassee, approximately 2.3 miles south of the Georgia-North Carolina state line in Union County, Ga., the dam is a combination earth and rockfill about 2,560 ft. long, including a 370-ft. flashboard-controlled spillway crest. The maximum height is 194 ft. Approximately 698,000 cu. yd. of rock fill and 840,000 cu. yd. of rolled earth-fill were placed in the dam. The spillway is the side channel type and is concrete lined. A 25-ft.-diam. 180-ft. high reinforced concrete intake tower will be used for controlling the hydraulically-operated conduit gates and will support the trashrack structure.

The reservoir formed by the dam will lie entirely within Union County, Ga., and will be about 23.2 miles long. The normal pool level, and the top of the spillway flashboards, will be at El. 1780. Maximum draw-down will be to El. 1690. Total volume of the reservoir at El. 1780 will be 190,000 acre-ft. Area of the reservoir at normal pool level will be 4,430 acres.

No power units will be installed initially in the $4,700,000 structure, although provision will be made for the later installation of one 15,000 kw. generating unit. The value of the project during the national emergency will lie in its reservoir storage capacity which can be used in plants below.

Philadelphia plans to sink emergency wells

Preliminary surveys are being made at Philadelphia, Pa., for the possible sinking of 20 to 25 artesian wells in the southern section of the city for a supplemental water supply for emergency use.

The purpose is to reinforce the water supply and insure adequate pressures in the area between the two rivers south of Washington Ave.—including the Navy Yard, the Quartermaster Depot, and the Government defense housing project. That area now is supplied from the Torresdale plant, which is 12 miles away on the Delaware River.

The water situation is becoming acute as defense industries in the city are now demanding 30,000,000 gpd. over normal requirements.

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Revitalized FWA organization speeds defense housing program contracts

First month's operations see contracts for over 22,000 demountable houses let. Public works structures limited to masonry and wood.

Defense areas the country over are feeling the impact of a revitalized FWA housebuilding policy daily being brought to greater effectiveness by Assistant Administrator Baird Snyder III, acting for Administrator Philip B. Fleming, who is still confined to the hospital with a leg ailment. As announced previously (*ENR* Jan. 15, 1942, p. 73 and Jan. 22, 1941, p. 145) Mr. Snyder is making housing a FWA job rather than a USHA or a PBA job. Toward this end he has placed responsibility for all permanent defense housing construction with the $300,000,000 Lanham Act amendment money under three men—Neal A. Melick, of PBA; William P. Seaver, of USHA; and Rufe B. Newman, Jr., of FWA. As contracts are let, they are parceled out to these three men for supervision. Mr. Newman, in addition, has charge of the 42,000 demountable house program to be built with $153,000,000 allocated to FWA by President Roosevelt about 30 days ago.

The 30 days just past have witnessed the letting of negotiated contracts for 22,058 demountable house units, as shown in the accompanying table. In thus getting half of the program under way Mr. Snyder has followed a policy of using available producers first and then working down to those less ready. Producers with potential capacity who are actually in production come first. Next are those with potential capacity able to go into immediate production. When these are loaded up, qualified contractors prepared for on-site prefabrication will be called, and last on the list are firms or individuals who are preparing to develop production capacities. The demountable houses so far contracted for are bought f.o.b. factory, and no contract has more than a 5-month delivery date.

A further development is the establishment of six regional offices where much of the contract negotiation and job supervision will be centered. These are to be located in San Francisco, Fort Worth, Kansas City, Chicago, Atlanta and New York. Pierce Williams has been appointed regional representative in San Francisco, James Bradner in Atlanta, and John Taylor Egan in New York City. Local architects will be chosen for the projects from names suggested by the American Institute of Architects. Every effort will be made to lease rather than buy sites for demountable houses.

On top of these organization developments Mr. Snyder announced on Feb. 15 a policy of limiting all defense public works projects to one and two-story masonry and one-story wooden structures. The policy applies to hospitals, schools and other incidental structures. Wood will be used where the need appears to be temporary, except that masonry will be recommended in areas subject to enemy action.

Firm	Total Units	Location	Units	Cost (Fabrication & erection)
Plywood Structures, Los Angeles, Calif.	2000	Paso Robles, Calif.	150	$5,779,440.00
		Vallejo, Calif.	1000	
		Campo, Calif.	30	
		Sacramento, Calif.	125	
		Victoryville, Calif.	140	
		San Diego, Calif.	555	
Green Lumber Co., Laurel, Miss.	1500	Jackson-Flora, Miss.	350	4,630,500.00
		Charleston, S. C.	1120	
		Tuskegee, Ala.	30	
Barret and Hilp, San Francisco, Calif.	5000	Norfolk-Portsmouth, Va.	5000	15,336,750.00
National Homes Corp., Lafayette, Ind.	1200	Kingsbury-LaPorte, Ind.	1200	3,573,684.00
Southern Mill & Mfg. Co., Tulsa, Okla	2940	Wichita, Kansas	1840	8,734,248.00
		Choteau, Okla.	500	
		Little Rock, Ark.	600	
		Charlestown, Ind.	....	
Gunnison Housing Corp., New Albany, Ind.	750	Louisville, Ky.	750	2,227,351.95
E. L. Bruce Co., Memphis, Tenn.	1000	Shreveport-Minden, La.	400	2,887,871.00
		Texarkana, Texas	500	
		Hope, Ark.	100	
Robert McCarthy, San Francisco, Calif.	1000	Vallejo, Calif.	1000	2,856,340.00
Houston Ready-Cunt House Co. Houston, Texas	900	Midland-Odessa, Tex.	125	2,321,532.00
		Mineral Wells, Tex.	100	
		Orange, Tex.	300	
		Unassigned	375	
Libbey-Owens-Ford Glass Co., Toledo, Ohio	1000	Kingsbury-LaPorte, Ind.	1000	3,006,105.20
Henry C. Beck Co., Dallas, Tex.	1000	Radford, Va.	500	2,925,000.00
		Charleston, S. C.	500	
		Wilmington, Ill.	500	1,474,925.00
Kroening Engineering Co., Milwaukee, Wisc.	500			
Bates Prefabricated Structures, Oakland, Calif.	1000	Vallejo, Calif.	1000	2,831,009.60
Allied Housing Associates, Inc., Langhorne, Pa.	500	Norfolk-Portsmouth, Va.	500	1,516,440.00
Hardin and Ramsey, Inc., Atlanta, Ga.	325	Moultrie, Ga.	135	941,824.00
		Valdosta, Ga.	190	
Arlington Fabricating Co., Arlington, Va.	250	Quantico, Va.	250	744,954.58
Home Building Corporation, Kansas City, Mo.	800	Granite City, Ill.	300	2,387,546.64
		Weldon Springs, Mo.	300	
		Alton-E. Alton, Ill.	200	
McCowan-Aldred Co., Macon, Ga.	193	Sebring, Fla.	193	557,245.50
Field Lumber & Improvement Co., Detroit, Mich.	200	Sandusky, Ohio	200	583,000.00
	22,058		22,058	$65,375,767.47

Designs standardized on defense works

Three standardized designs have been adopted by the Federal Works Agency for buildings constructed under the Defense Public Works Program, which provides municipal facilities for towns hard-pressed by war expansion. In the future, buildings will be limited to the standard models or to combinations of standard units.

The standard for permanent structures is a concrete frame building of one or two stories, 58 ft. wide and of indefinite length. This building will have a concrete floor on gravel fill, and 16-in. concrete columns will support a concrete roof. The two-story unit is simply two of the one-story units, one on top of the other, plus provision for stairways. Two column-spacings will be used, one to permit wide corridors in schools, another for all other buildings. Side walls, which will not be load-bearing, may be of concrete, cinder-block, or brick.

This design rather than a bearing-wall type was adopted partly in the interests of bomb resistance but mainly to make it easier to remodel the buildings.

For temporary and semi-temporary structures, two designs have been worked out in wood, one purely temporary and the other fire-resistant.

Rural Road Work Goes On

The Pennsylvania state highway department has announced that it has been granted about $10,000,000 for rural road improvement work by its own forces during 1942. T. C. Frame, chief engineer, said the work will be of the "light type," utilizing materials not now considered to interfere with the nation's war efforts.

Production efficiency built into a factory

Recently completed by the Owens-Illinois Can Co. at Clearing, Ill., is a new manufacturing plant designed with special emphasis on providing efficient working conditions. Problems that received particular attention were: (1) lighting; (2) soundproofing; (3) heating and ventilation; (4) ease of keeping clean working areas, locker rooms and washrooms, and (5) best arrangements for manufacturing and supervision.

Space layout

This 160x360-ft. plant for the production of metal containers is three stories high with one longitudinal roof monitor and it is laid out for a gravity flow of work. Two railway sidings and eight truck back-ins provide for delivery of materials on first floor. All raw materials are sorted on this floor and then carried by elevators to the top or third floor for processing into metal containers. From this point, the containers are carried by conveyors to the second floor for packing and storing, and then dropped to the ground floor for shipping.

Bands of glass blocks around the exterior walls and the single longitudinal roof monitor, which runs north and south, were determined to be the most satisfactory method for lighting the manufacturing area. For artificial lighting when needed fluorescent units were installed on the top floor, while incandescent units were considered satisfactory for the lower two floors.

Ventilation of the two lower floors is achieved by means of sash and louvres in the sidewalls, but on the third floor, in addition to louvres and sash, the air is changed by seven 6-ft. diameter fans each set in a roof penthouse. The fans provide a maximum of 15 air changes per hour.

Glass fiber insulation

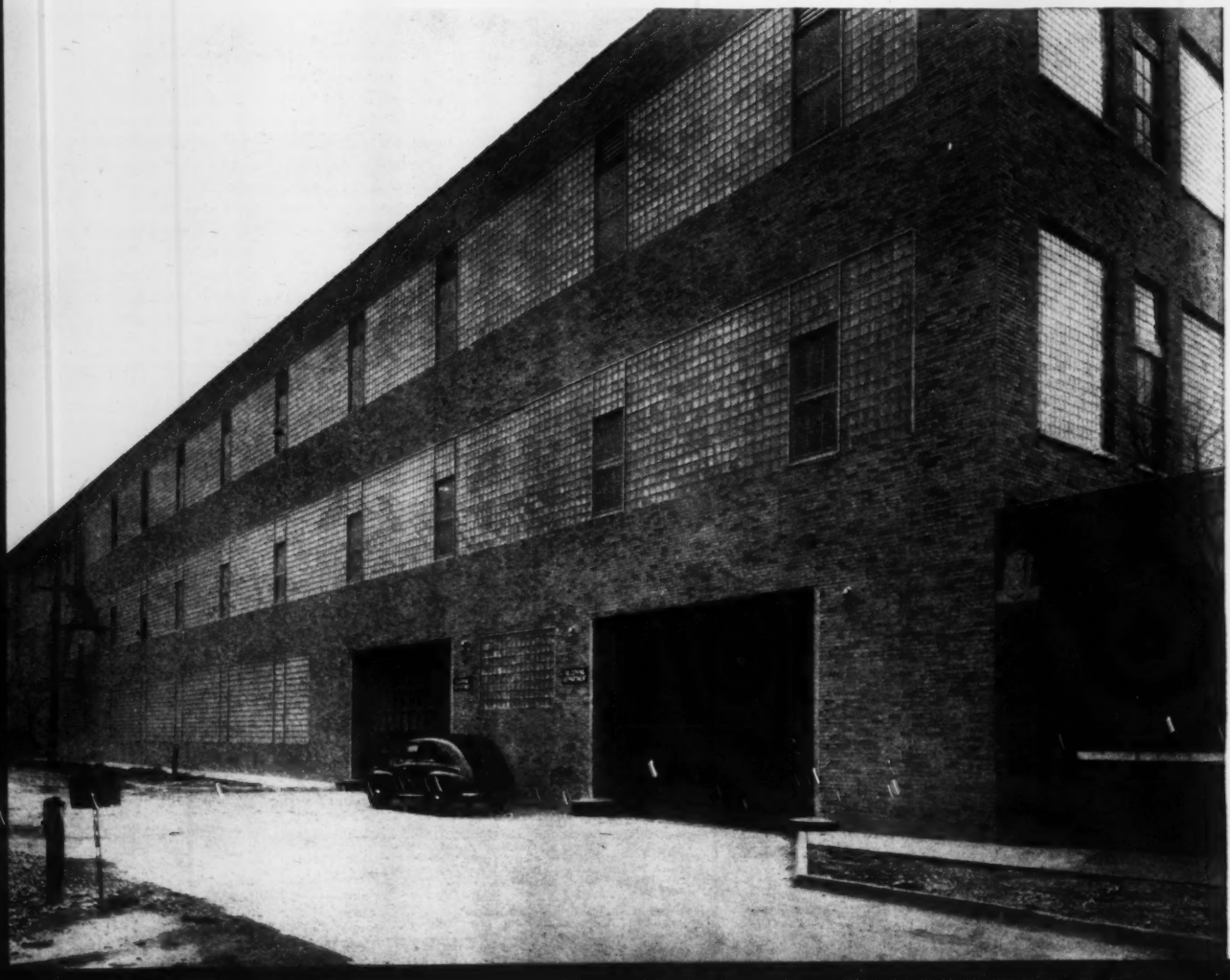
To reduce the noise created on the top floor by the manufacturing processes, a 4-in. thick glass fiber insulation is used on the ceiling. This blanket, which is inclosed in a vapor-sealed wrapping paper, is held in place underneath the roof deck by metal lath. Both the paper inclosing the insulation and the metal lath were sprayed with aluminum paint to create an attractive, light-reflecting surface.

A mezzanine located above the third floor level but below the monitor roof provies offices for the master foreman and the plant supervisor. The view from these offices, which are inclosed by sound insulation to shield the rooms from noise of the production lines below, makes possible easy supervision of the entire manufacturing floor.

Designer and constructor

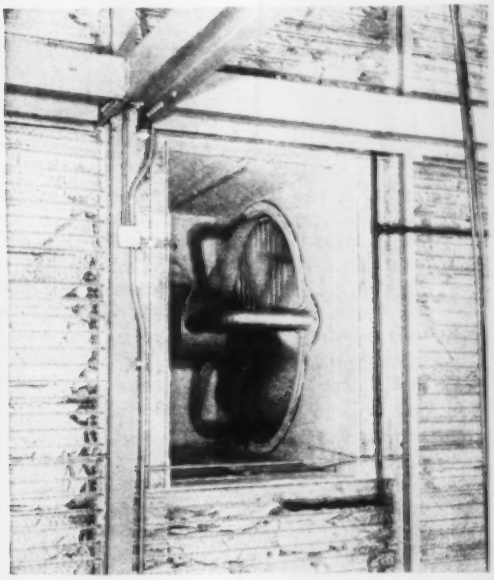
Other provisions to provide for good working conditions are shown by the accompanying photographs. The plant was designed by John Fedosky, engineer-designer of the Owens-Illinois Can Co., and constructed by the Hughes-Foulkrod Co., Philadelphia.

Three bands of glass blocks, broken only by windows and louvres, are used for sidewalls on the Owens-Illinois Can Co. manufacturing plant.



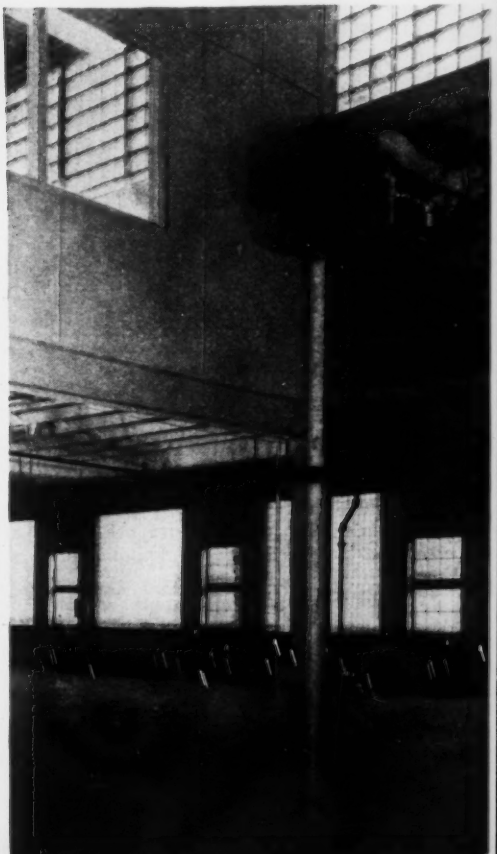
In center of building (illustration at left) fluorescent lighting is intended to duplicate daylighting effect achieved by glass blocks in sidewalls and by the roof monitor. Note even light intensity on floor.

Plant's top or fabricating floor is ventilated by seven 6-ft. dia. exhaust fans, each set in its own penthouse. The view below, looking toward the ceiling, also shows underside of acoustical and thermal insulation hung from the roof deck and supported by metal lath.



Locker rooms (shown below) have lower walls of salt-glazed brick and upper walls of glass blocks. Each wash basin accommodates ten men. At upper right are wire baskets for storing clothes changes; each basket has a chain that can be padlocked to the tie-bar near wall.

Open floor areas are heated by unit heaters. The installation, shown below, is on third floor and has 40-ft. heating radius. Also shown is third floor mezzanine control rooms (upper left) in which is located the administrative staff.



First-aid room (as seen below) is light and clean with interior partitions of glass blocks. Illumination is supplied by fluorescent fixtures. Floor is of painted concrete.

PRIORITIES GUIDEPOST

Current notes on what, who and how

ARMY AND NAVY construction contractors and public health and safety officials who need a new automobile so badly that they cannot wait until the auto rationing plan goes into effect Feb. 26 may obtain one by applying to Washington. Contractors must certify that the car is needed to transport engineers or supervisors and public officials. Application should be made to Leon Henderson, Office of Price Administration.

PRICES of cast iron soil pipe and fittings are frozen by Schedule 100. The schedule, which continues the regular Birmingham basing point system, sets prices for contractors in terms of discounts from the standard revised price list in use in the industry since 1936. Thus, the minimum discount off list for 2-6 in. extra heavy pipe in carload lots is 52½ points.

HIGHWAY DEPARTMENTS are warned in a formal interpretation of the repair and maintenance order, P-100, that they must under no circumstance use this order in an attempt to get rubber burlap, and that they must not use it for purchases of metal products where some other material could be used. Metal culverts, road signs, cable, guard rails or reinforcing bars are specificially banned. Order P-100 permits use of an A-10 priority rating by nearly all industries and utilities for purchase of repair, maintenance, and operating supplies.

YELLOW TRAFFIC MARKINGS on roads are on their way out, WPB warns, because of a scarcity of chrome yellow. Emergency specifications for white paint for the purpose are being discussed by the War Production Board. Because of similar color scarcities, auto license plates next year will probably be restricted to black and white, the reddish earth tones, and some iron blue.

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Allot funds for tin can processing plant

The Defense Plant Corporation, a subsidiary of the RFC, has allocated about $175,000 for the construction of plants in the vicinity of Dallas and Houston, Tex., and Kansas City, Mo., where used tin cans will be prepared for use in a leaching process in the precipitation of copper from mines.

To assure a plentiful supply of discarded cans, the Bureau of Industrial Conservation has urged the mayors of the three cities where the plants will be built, as well as heads of many neighboring municipalities, to launch local collection campaigns.

The new plants are expected to be ready for operation by the middle of the coming summer. They will clean and shred the cans and then ship the metal to copper mines. Mine waters containing copper sulphate, flowing over the shredded metal, will produce copper equal in amount to the quantity of metal used.

Paul C. Cabot, deputy chief of the Bureau of Industrial Conservation, said his letters to the mayors of the southwestern communities had requested that householders be urged to segregate tin cans and that the city arrange for their collection and removal to a central depot.

Mr. Cabot also announced that similar collections would be inaugurated in the immediate future at Pittsburgh and Sewaren, N. J. He explained that there are de-tinning plants in both areas that process the cans and reclaim both tin and steel. The public in those areas will be urged to save used cans, which will be collected at regular intervals by municipal trucks. To aid the de-tinning plants, housewives will be asked to clean the cans after food has been removed; cut bottoms as well as the tops, and flatten the remaining portion of the cans.

Although there has been widespread public discussion of salvaging tin cans (*ENR*, May 8, 1941, p. 67) the bureau previously had discouraged the idea, Mr. Cabot explained, largely because of the limited number of de-tinning plants. It was considered unwise to sponsor a nation-wide collection, he pointed out, when it would have been impossible for persons who saved the cans to dispose of them. Until the results of the efforts in Pittsburgh and Sewaren are revealed, only residents of those sections will be asked to give their support to the undertaking.

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Declare city liable for inadequate storm drain

In a verdict believed to be the first of its kind in the history of the city, a New York State Supreme Court jury last week held in the city of New York liable for damages of $130,000 allegedly caused to homes as a result of inadequate sewer facilities.

The suit was brought by a group of residents in the Forest Hills, Queens, residential district, who claimed that the damage was done during a "cloudburst" on August 25, 1939, when allegedly inadequate sewers failed to carry off the water.

The city's corporation counsel argued that at the time the system was built most of the Forest Hills section was farmland, and municipal economy dictated the restriction of sewer construction.

Tank repair contracts should be scrutinized

Many small towns having elevated steel tank water storage are being victimized by unscrupulous tank repair companies who take advantage of the unfamiliarity with tank maintenance by village officials. Usually the procedure is as follows: Town officials are approached by a representative of the repair firm and told their tank needs painting. The firm offers to paint the tank, inside and out, and presents an innocent-looking contract including the clause "and will replace all loose rivets and weld up all pits at $— per man hour of labor, $— per hour compressor time, $— per hour welding machine time, $— per lb. of rivets furnished, $— per lb. of welding rod. All new steel furnished will be billed at cost."

The story from scores of swindled towns is the same. The painting contract runs from $125 to $300 or $400, but the "repair" bill runs into additional thousands of dollars. Frequently every rivet in the tank is found "loose" and must be replaced. The age of the tank makes no difference, for almost new installations seem to require as much "repair" as older tanks in service for a great many years.

Tank manufacturers point out that if a loose rivet should be found, calking it and the adjoining seam to stop leakage is far better than knocking the rivet out and replacing it, for such action usually loosens adjoining rivets. Also, they claim, pits should not be welded, as that procedure sets up additional stresses in the plate.

Pittsburgh-Des Moines Steel Co., Chicago Bridge & Iron Co., and other manufacturers are warning their customers to beware of unknown tank repair firms. They realize there are many reputable firms in the business, whose names can be obtained from the manufacturers. While primarily not in the repair business, the manufacturers are willing to make an inspection and submit a report for a small fee, or they suggest an inspection be made by a reputable consulting engineer.

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Huie named New York civilian defense aide

Major Irving Huie, New York City commissioner of public works, will be in sole charge of civilian defense in the city in case of enemy attack, Mayor F. H. LaGuardia said this week. Maj. Huie's chief duties will be to supervise the protection and maintenance of utilities, and the organization of forces to repair such utilities and keep them operating during bombing of the city.

New gasoline pipeline will deliver fuel to southeast in near future

Plantation line, built in seven months at cost of $20,000,000 now undergoing final tests. Hearing scheduled on Texas—Georgia crude oil line application by Trans-America Co.

The new Plantation pipeline, expected to provide a large part of America's answer to current submarine attacks on tanker fleets plying between Gulf ports and the east coast, is expected to deliver approximately 1,250,000 gallons of finished fuel per day when placed in operation early in March. Test runs are now in progress.

The $20,000,000 pipeline, sponsored by Shell Union Oil Corporation; the Standard Oil Company (N. J.) and Standard Oil (Ky.), extends for 785 miles from Baton Rouge, La., to Greensboro, N. C. The entire line, which includes five lateral lines, comprises 1,261 miles of pipe, and was completed in seven months from the time gangs began clearing the right-of-way on July 28, 1941.

With half its pumping stations completed and ready for service, the capacity of the line when opened will be slightly over 30,000 barrels, or 1,250,000 gallons a day. In a few months, however, with the full complement of pumping stations in operation, that figure is expected to rise to 60,000 barrels.

The first 429 miles of pipe, 12-in. in diameter, extends across Mississippi and Alabama to Bremen, Ga. The 356 miles remaining between Bremen and Greensboro are covered by 10-in. pipe. One of the five lateral lines—to Knoxville, Tenn.—is an 8-in. pipe and the remainder, running to Birmingham and Montgomery, Ala., and Columbus and Macon, Ga., are 4 in. lines.

Projected for several years, the plantation line was held up by inability to obtain necessary rights-of-way until recent congressional action.

The first section of the pipe to be completed, to Meridian, Miss., went into operation on Jan. 22 delivering more than 400,000 gallons in the first delivery. The new line will provide direct service to the six southeastern states it crosses—Alabama, Georgia, Florida, South Carolina, North Carolina and Tennessee—an area dotted with army posts, airfields and new defense centers. A companion project, the Port St. Joe-Chattanooga line, was completed and put into operation last month.

Crude oil price hearing set

A three-member board named by the Office of Defense Transportation at Washington, will hold hearings Feb. 19 at the ICC offices in Washington on an application of the Trans-America Pipe Line Corporation for the construction of a crude oil pipeline from Texas to Savannah, Ga.

The corporation has requested Joseph B. Eastman, director of defense transportation, to recommend to President Roosevelt that a proclamation be issued certifying the pipeline as essential to defense.

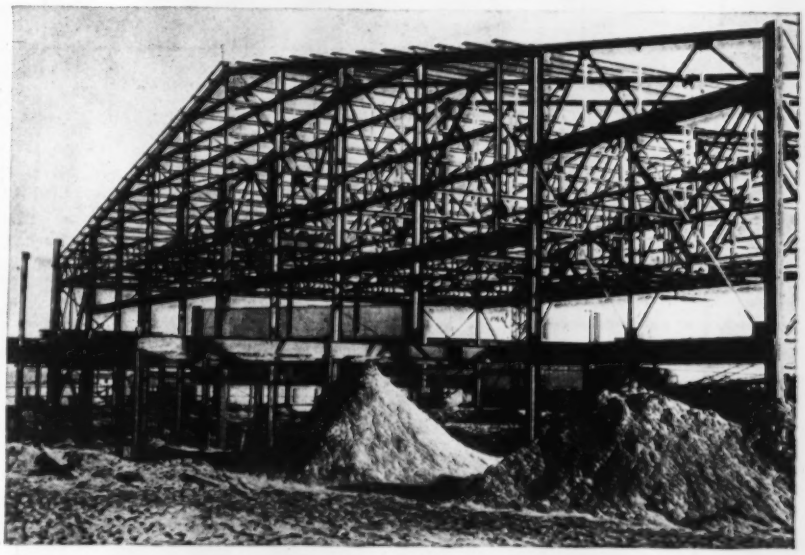
The appointees are B. H. Meyer, a former member of the ICC; C. E. Childe, a member of the board of investigation and research, ICC, and J. Paul Kelley, ICC examiner.

WPB clinic set for road builders' meeting

The War Production Board will hold a priorities clinic in Memphis, Tenn., Tuesday, March 3, in conjunction with the Defense Highway Congress of the American Road Builders' Association.

Top-ranking WPB officials will make brief addresses at an industry luncheon held at the Peabody hotel, and following the luncheon, officers of various commodity branches of the board will hold separate clinics to answer specific questions on their respective subjects.

Simultaneous meetings will be held dealing with construction equipment, construction materials, maintenance and repair, state and local government requirements, status of highway projects, production requirements plan and other subjects related to construction and maintenance of the nation's roads.



Seaplane hangar will serve transatlantic planes

Seaplane hangar No. 2, which will house the trans-Atlantic transport planes of American Export Airlines, Inc., at LaGuardia field, New York, is expected to be ready for occupancy June 1, according to Joseph Meehan, acting chief engineer for the Department of Docks, New York City.

The building is the tenth hangar constructed at the airport, and will cost about $450,000. Smaller than other hangars at the field, Hangar No. 2 will be supported on a 126 ft. jack truss supported in turn by a 226-ft. longitudinal truss based on columns at the sides of the structure, giving a clear floor space without central columns. Other hangars are hung from central trusses supported on center columns.

The new building will be 126x226 ft. with a lean-to 36x154 ft. two stories high. Clear height will be 31 ft. 6 in., the door opening 160 ft. clear with 30 ft. headroom. Doors are bifold canopy type, electrically operated. The structure has a steel frame, with brick sidewalls, and reinforced-concrete floors. The roof will be of fireproof gypsum plank, with 1 in. insulation and five ply tar and gravel roofing. Foundations are cast-in-place concrete piles. Building equipment includes a complete automatic sprinkler system for both the hangar and lean-to; a compressed air cleaning system to service planes; a complete electric fire alarm and air raid signal system; network system of high and low tension feed to provide service at more than one source in the event of an accident, and two sources of water supply for the sprinkler and hydraulic systems. Heat will be provided in the hangar by four oil burning blast unit heaters and in the lean-to by an oil burning boiler and steam radiators.

Architects are Delano & Aldrich, of New York, and the general construction contract has been let to the Jonwall Construction Co., also of New York.

PRIORITIES GUIDEPOST

Current notes on what, who and how

ARMY AND NAVY construction contractors and public health and safety officials who need a new automobile so badly that they cannot wait until the auto rationing plan goes into effect Feb. 26 may obtain one by applying to Washington. Contractors must certify that the car is needed to transport engineers or supervisors and public officials. Application should be made to Leon Henderson, Office of Price Administration.

PRICES of cast iron soil pipe and fittings are frozen by Schedule 100. The schedule, which continues the regular Birmingham basing point system, sets prices for contractors in terms of discounts from the standard revised price list in use in the industry since 1936. Thus, the minimum discount off list for 2-6 in. extra heavy pipe in carload lots is 52½ points.

HIGHWAY DEPARTMENTS are warned in a formal interpretation of the repair and maintenance order, P-100, that they must under no circumstance use this order in an attempt to get rubber burlap, and that they must not use it for purchases of metal products where some other material could be used. Metal culverts, road signs, cable, guard rails or reinforcing bars are specifically banned. Order P-100 permits use of an A-10 priority rating by nearly all industries and utilities for purchase of repair, maintenance, and operating supplies.

YELLOW TRAFFIC MARKINGS on roads are on their way out, WPB warns, because of a scarcity of chrome yellow. Emergency specifications for white paint for the purpose are being discussed by the War Production Board. Because of similar color scarcities, auto license plates next year will probably be restricted to black and white, the reddish earth tones, and some iron blue.

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Allot funds for tin can processing plant

The Defense Plant Corporation, a subsidiary of the RFC, has allocated about $175,000 for the construction of plants in the vicinity of Dallas and Houston, Tex., and Kansas City, Mo., where used tin cans will be prepared for use in a leaching process in the precipitation of copper from mines.

To assure a plentiful supply of discarded cans, the Bureau of Industrial Conservation has urged the mayors of the three cities where the plants will be built, as well as heads of many neighboring municipalities, to launch local collection campaigns.

The new plants are expected to be ready for operation by the middle of the coming summer. They will clean and shred the cans and then ship the metal to copper mines. Mine waters containing copper sulphate, flowing over the shredded metal, will produce copper equal in amount to the quantity of metal used.

Paul C. Cabot, deputy chief of the Bureau of Industrial Conservation, said his letters to the mayors of the southwestern communities had requested that householders be urged to segregate tin cans and that the city arrange for their collection and removal to a central depot.

Mr. Cabot also announced that similar collections would be inaugurated in the immediate future at Pittsburgh and Sewaren, N. J. He explained that there are de-tinning plants in both areas that process the cans and reclaim both tin and steel. The public in those areas will be urged to save used cans, which will be collected at regular intervals by municipal trucks. To aid the de-tinning plants, housewives will be asked to clean the cans after food has been removed; cut bottoms as well as the tops, and flatten the remaining portion of the cans.

Although there has been widespread public discussion of salvaging tin cans (*ENR*, May 8, 1941, p. 67) the bureau previously had discouraged the idea, Mr. Cabot explained, largely because of the limited number of de-tinning plants. It was considered unwise to sponsor a nation-wide collection, he pointed out, when it would have been impossible for persons who saved the cans to dispose of them. Until Pittsburgh a only resident asked to give taking.

Declare inadequ

In a verdict its kind in the York State Su held in the ci damages of $ to homes as a facilities.

The suit wa residents in t residential dist damage was d on August 25, adequate sewe water.

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Tank repair contracts should be scrutinized

Many small towns having elevated steel tank water storage are being victimized by unscrupulous tank repair companies who take advantage of the unfamiliarity with tank maintenance by village officials. Usually the procedure is as follows: Town officials are approached by a representative of the repair firm and told their tank needs painting. The firm offers to paint the tank, inside and out, and presents an innocent-looking contract including the clause "and will replace all loose rivets and weld up all pits at $— per man hour of labor, $— per hour compressor time, $— per hour welding machine time, $— per lb. of rivets furnished, $— per lb. of welding rod. All new steel furnished will be billed at cost."

The story from scores of swindled towns is the same. The painting contract runs from $125 to $300 or $400, but the "repair" bill runs into additional thousands of dollars. Frequently every rivet in the tank is found "loose" and must be replaced. The age of the tank makes no difference, for almost new installations seem to require as much "repair" as older tanks in service for a great many years.

Tank manufacturers point out that if a loose rivet should be found, calking it and the adjoining seam to stop leakage is far better than knocking the rivet out and replacing it, for such action usually loosens adjoining rivets. Also, they claim, pits should not be welded, as that procedure sets up additional stresses

TIGH
BOU

New gasoline pipeline will deliver fuel to southeast in near future

Plantation line, built in seven months at cost of $20,000,000 now undergoing final tests. Hearing scheduled on Texas—Georgia crude oil line application by Trans-America Co.

The new Plantation pipeline, expected to provide a large part of America's answer to current submarine attacks on tanker fleets plying between Gulf ports and the east coast, is expected to deliver approximately 1,250,000 gallons of finished fuel per day when placed in operation early in March. Test runs are now in progress.

The $20,000,000 pipeline, sponsored by Shell Union Oil Corporation; the Standard Oil Company (N. J.) and Standard Oil (Ky.), extends for 785 miles from Baton Rouge, La., to Greensboro, N. C. The entire line, which includes five lateral lines, comprises 1,261 miles of pipe, and was completed in seven months from the time gangs began clearing the right-of-way on July 28, 1941.

With half its pumping stations completed and ready for service, the capacity of the line when opened will be slightly over 30,000 barrels, or 1,250,000 gallons per day. In a few months, however, with the full complement of pumping stations in operation, that figure is expected to rise to 60,000 barrels.

The first 429 miles of pipe, 12-in. in diameter, extends across Mississippi and Alabama to Bremen, Ga. The 356 miles [illegible] and Greens-

Line Corporation for the construction of a crude oil pipeline from Texas to Savannah, Ga.

The corporation has requested Joseph B. Eastman, director of defense transportation, to recommend to President Roosevelt that a proclamation be issued certifying the pipeline as essential to defense.

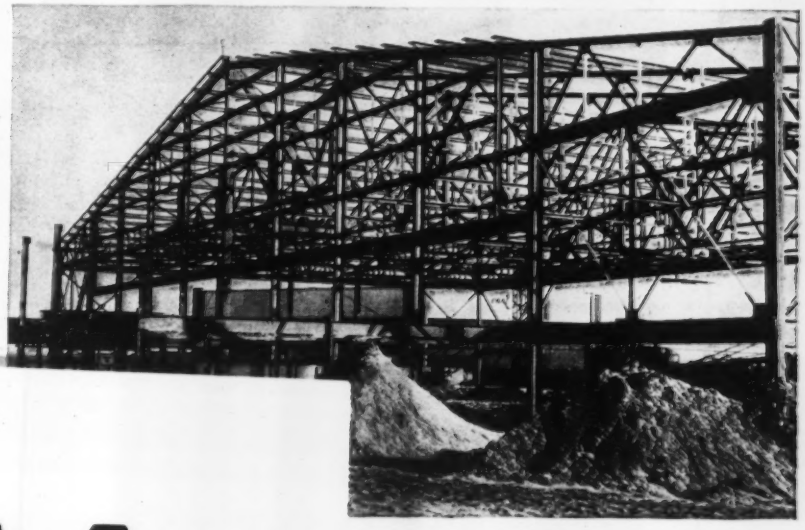
The appointees are B. H. Meyer, a former member of the ICC; C. E. Childe, a member of the board of investigation and research, ICC, and J. Paul Kelley, ICC examiner.

WPB clinic set for road builders' meeting

The War Production Board will hold a priorities clinic in Memphis, Tenn., Tuesday, March 3, in conjunction with the Defense Highway Congress of the American Road Builders' Association.

Top-ranking WPB officials will make brief addresses at an industry luncheon held at the Peabody hotel, and following the luncheon, officers of various commodity branches of the board will hold separate clinics to answer specific questions on their respective subjects.

Simultaneous meetings will be held dealing with construction equipment, construction materials, maintenance and repair, state and local government requirements, status of highway projects, production requirements plan and other subjects related to construction and maintenance of the nation's roads.



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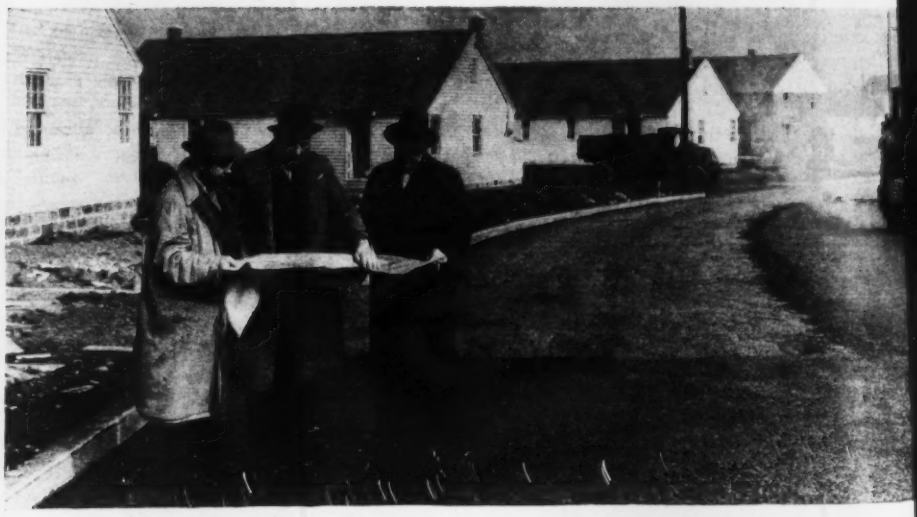
Architects are Delano & Aldrich, of New York, and the general construction contract has been let to the Jonwall Construction Co., also of New York.

MEN AT WORK

M. RAGONIA, left, is carpenter foreman and ROCCO LANZALOTTA is superintendent for Corbetta Construction Co. on the paving and incidental concrete work on the Gowanus Elevated Parkway in Brooklyn.

From his office window FRANK CROWE, general superintendent for Pacific Constructors, Inc., can observe the steady progress being made on Shasta Dam. Leading exponent of cableways for placing concrete, he can watch seven of these units radiating from the record size 460-ft. head tower.



The Federal Works Agency is building in the Bridgeport, Conn., area a 1,250 unit housing project for families of industrial workers. Acting in supervising capacities are, left to right, FRED JOHNSON, associate architect; HARRY G. LINDSAY, architect, and CARL SORENSON, engineer.

COL. FRANK S. BESSON, Corps of Engineers, division engineer at Kansas City, Mo., (left) is shown as he and LIEUT. COL. ALEXANDER M. NEILSON, district engineer, (second from left) completed a tour of inspection of three major projects they recently took over from the construction division of the Quartermaster Corps, U. S. Army. Standing in the doorway is LIEUT. JOHN P. SOULT, engineer executive officer for the Kansas Ordnance Plant. At the extreme left is MAJ. K. M. PATTEE, area engineer.

...A. ARMULL was recently resi-... engineer on installation of ...15-ft. turntable at the Toledo ...os of New York Central R.R.

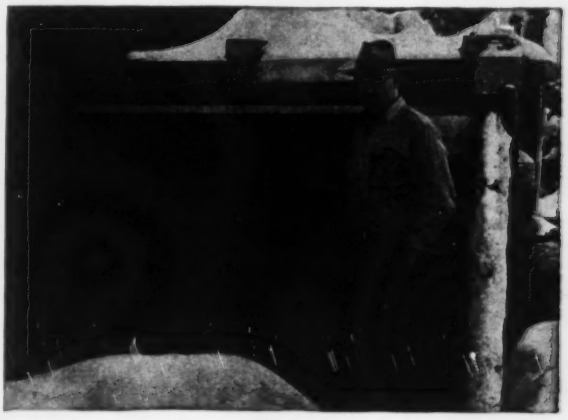
When the Central Branch of the Associated Contractors of America met at Des Moines recently, FRED WHITE, (below) chief engineer, Iowa State Highway Department, was the principal speaker.

FRANK UPMAN, JR., (below) was recently appointed deputy highway commissioner of Connecticut. A graduate of the University of Virginia, Mr. Upman was formerly acting WPA administrator of that state.

GEO. MALARKY is superintendent for John F. Casey Co. of Pittsburgh, on Duquesne Way built for Allegheny County.

...mong the engineers in charge on the ...6,500,000 recently completed project ...hat made possible elimination of 24 ...rade crossings on the Lackawanna R. R. ...t Syracuse, N. Y., were the two above. ...At the left is CHARLES S. SLACK, as...sistant engineer of the Syracuse Grade Crossing Commission, and at the right GEORGE T. BOLTON, division engineer.

On a 100 building, 500 unit, defense housing project (right) in Euclid, Ohio, ROBERT J. BLACK (right) is engineering aide for the Cleveland Metropolitan Housing Authority, E. J. EASTHAM (center) is superintendent for Schirmer-Peterson Co. of Cleveland, general contractors, and W. W. DIBRELL is project manager for the U. S. Housing Authority.



TOM TAYLOR, superintendent for Ed. H. Honnen Construction Co., Colorado Springs, Colo., inspects the icy portal of the pioneer bore of the Loveland Pass Highway Tunnel, near Silver Plume, Colo. The pioneer bore is 5,400 ft. long.

MEN AND JOBS

Charles C. Lindsay, Quebec civil engineer, has been appointed a member of the Montreal Tramways Commission to replace the late W. A. Bishop.

Marcellus P. Lee, formerly principal engineering aide, Denison District, U. S. Engineer Department, has been promoted to the position of superintendent of construction and maintenance at Perrin Field, Sherman, Tex.

Glen S. Weeks has been named engineer and superintendent of public works for the city of Melrose, Mass., to succeed **Fred E. Ellis.** Mr. Weeks formerly was associated with the Boston & Maine R. R. engineering department.

Robert Krog, a surveyman formerly connected with the Gann Valley, S. D. office of the South Dakota State Highway Commission, has accepted a civil service appointment with the U. S. Army Engineers at Corozal, Canal Zone.

A. E. Tuttle, former Sauk County, Wis., highway commissioner, has joined the Mason & Hanger Co. as an engineer on surveys and field work for the new Badger Ordnance Works, which is located near Merrimac, Wisc.

J. N. Finlayson has been elected chairman of the Engineering Bureau of the Vancouver, B. C., Board of Trade.

Engineers in charge of the construction of the $750,000 Raleigh-Durham, N. C., airport, being built midway between the two cities, are: **R. M. Pickard,** construction superintendent; **Harvey Stewart,** assistant superintendent; **J. O. Craig,** resident engineer, and **R. C. Thomas,** construction engineer. The work is being directed by **A. H. Kennedy,** district WPA engineer, of Durham.

L. A. Fugitt, head of the contract and supply section of the Denison District, U. S. Engineers, has been transferred to a similar post at the San Francisco district office.

B. T. McCall has been appointed field engineer for the Piatt-Lee Engineering Company to take charge of preliminary work in connection with construction of a new $35,000,000 army Cantonment near Durham, N. C.

John C. Connolly of Dayton, Ohio, has been engaged as a part-time engineer for the city of Xenia, O., to survey street surfacing and sewage-disposal needs of the municipality.

Transferred from the office of the Bureau of Reclamation at Denver to the Spangler Dam, Mann Creek project, at Weiser, Idaho, were **W. E. Wheeler,** assistant engineer, who will assume the post of office engineer; **L. B. Ackerman,** associate engineer, who will assume the post of project engineer.

Wilson & Co., consulting engineers of Salina, Kan. have been appointed as engineers to make plans and specifications and field surveys for the War Department on the proposed $23,000,000 munitions dump to be constructed near the city of Pueblo, Colo.

Engineers who have recently been called to active service in the Civil Engineering Corps of the Naval Reserve include: **Claude Darby,** bridge designer for the Oregon State Highway Department, commissioned a lieutenant, at the Mare Island, Cal. base. Engineers called for active service with the U. S. Engineers include **E. A. Harling,** formerly a draftsman with the North Carolina State Highway and Public Works Commission of Raleigh, commissioned as first lieutenant; **Leon B. Turner,** formerly of Fay, Spofford & Thorndike, engineers, of Boston, commissioned a captain.

Engineer members of the Civil Engineer Corps, U. S. Navy, and Civil Engineer Corps, U. S. Naval Reserve, who recently received temporary promotions in rank included: **Commander to Captain**—John Nobel Laycock, Ira Purdy Griffen, Carl H. Cotter, Kendal Benjamin Bragg, George Denison Wetsel, Hugo Carl Fischer, Lewis Nicholas Moeller, Andrew Gustave Bisset, Raymond Vernon Miller, Charles R. Johnston, Theron Abbot Hartung. **Lieutenant commander to commander** — Fritz Charles Nyland, Robert Leson McLellan, Robert Edward Hancock, George Reitzle Brooks, Simson Carl Stengel, Robert Edward Bassler, John Jacob Gromfine, John James Chew, Rufus Chester Harding, Charles Theodore Dickeman, Carl Washburn Porter, Henry Parke Needham, Beauford Wallace Fink, Jr., John Richard Perry. **Lieutenant commander to commander in the Reserve**—Herbert F. Plumer, Albert A. Ort, Edward J. Spaulding, Carl E. Beam, John S. Leister, Gilbert A. Hunt, Edward B. Cary, Oscar L. Carlson, Everett S. Huntington, Hector C. Griswold, Arthur C. Eberhard, Emil J. Praeger. **Lieutenant to lieutenant commander.**—Albert James Fay, Howard Franklin Ramsford, Horace Breneman Jones, William Frank Wesanen, Alexander S. C. Wadsworth, Henry Garner Clark.

Dr. George R. Harrison, professor of physics and director of the spectroscopic research laboratory, has been appointed dean of the school of science at the Massachusetts Institute of Technology, Boston, Mass.

Maurice Holland, formerly director of the division of engineering and industrial research of the National Research Council, has been appointed industrial research adviser to the New York University College of Engineering.

H. D. Morgan has joined the firm of C. S. Meik & Halcrow, London civil engineers, according to a recent announcement. The name of the firm will be changed to W. T. Halcrow and Partners.

Henry M. Ford, recently with Charles W. Cole & Son, architect-engineers, and before that in charge of all construction projects for the WPA in 20 southwestern counties of Wisconsin, has been appointed state director of the public Works Reserve for Wisconsin, with offices at Madison.

H. J. Dickman has recently been made assistant chief engineer in charge of construction for Allegheny County (Pittsburgh), Pa. Until last May he was engineer of surveys in the county and from that time until recently has been on loan to the Defense Housing Authority of Allegheny County.

Maj. Frank E. Taylor, Jr., has replaced **Capt. Frank A. Ray** as United States Army area engineer in charge of construction of the $40,000,000 Plum Brook ordnance works, located at Sandusky, Ohio.

Frank L. Flood, formerly assistant and senior engineer of Metcalf & Eddy, Boston civil engineers, has become a member of the firm, according to a recent announcement. Mr. Flood is a member of the American Society of Civil Engineers, Boston Society of Civil Engineers, New England Water Works Association and New England Sewage Works Association.

Weldon Weir, city director of public works for Asheville, N. C., has been named to direct emergency public works under the office of civilian defense coordinator for Asheville. **Floyd Padgett,** of the city water department, is director of emergency utilities.

Eugene Quiriconi, formerly a draftsman and designer in the highway department of the Borough of Queens, New York, has become designing engineer for the Ferber Co.—engineers and builders—of Hackensack, N. J.

Canada's wartime effort discussed at Engineering Institute meeting

C. D. Howe, Minister of Munitions and Supply and Lieut. Gen. A. L. Macnaughton, give details of Canada's industrial expansion and tell of the contribution of research to the war effort.

War—and the fact that this is an engineers' war—dominated all phases of the 56th annual meeting of the Engineering Institute of Canada, held in Montreal Feb. 5–6. All but one of the papers presented at the technical session had a direct bearing on the war in one or more of its aspects.

Registration broke all previous records for E. I. C. meetings, exceeding one thousand. This was due in part to the fact that Montreal is the center for much of Canada's war effort, but a corresponding reason seemed to be that many engineers, working at high pressure for many months, used the meetings as a welcome change from work and as an opportunity to meet with other engineers. The war affected also the nature of the social functions, arranged on a less formal scale than usual but attended by capacity crowds. Two of these functions, by reason of the principal speakers present, attracted nation-wide attention. These speakers, both members of the institute, were C. D. Howe, Canada's Minister of Munitions and Supply, and Lieut Gen. A. L. Macnaughton, Commander of the Canadian Army Overseas since 1939, recently returned to Canada. Mr. Howe, in his technical review of Canada's industrial war effort, revealed many figures as to Canada's wartime effort that were new to the Canadian public and so attracted wide attention.

General Macnaughton is president of the National Research Council of Canada. He is on leave of absence, his place being filled temporarily by the retiring president of the institute, Dean C. J. Mackenzie of the University of Saskatchewan. Although he had just come to Canada for a brief visit he agreed to return to Montreal, after only his first day in Ottawa, to attend the annual banquet. His presence, therefore, was a last-minute surprise. The fact that this was his first public appearance in Canada since his return was a compliment to the institute, appreciation of which was well shown by the tumultuous reception given by the thousand people who crowded the banquet hall.

General Macnaughton paid tribute to the work being done by the National Research Council under Dean Mackenzie and urged all Canadians to beware of being complacent about Canada's war effort, the fight with the enemy being one to the death, calling for every possible effort from all citizens of the united nations.

The banquet was equally notable in that at the head table there were seated, as guests of the institute, the presidents of seven major engineering organizations of the United States and five of the secretaries.

Institute reports growth

At the opening business meeting reports were presented showing a healthy progress of institute affairs during the past year; membership stands at an all-time high, and finances are satisfactory, despite major repairs to the institute building in Montreal. No controversial matters came up for discussion, but the council was asked to review the present institute requirements for life membership. Good progress was reported in the working of the cooperative agreements that the institute now has with four of the eight provincial professional engineering associations, the last of which was recently signed with the New Brunswick association.

C. R. Young, Dean of the Faculty of Applied Science and Engineering of the University of Toronto, was elected president for the coming year. Julian C. Smith medals were awarded to Air Vice Marshall Stedman, of Ottawa, Prof. W. E. McBride of Montreal, and W. G. Murrin of Vancouver. The Gzowski Medal, chief technical award of the institute, was won by S. R. Banks of Montreal for a paper on the Lion's Gate Bridge, Vancouver.

Research aids war work

The retiring president, C. J. Mackenzie, devoted his address to a review of the war-time work of the National Research Council of Canada, to the limits that censorship would allow. Started in the last war, in 1916, at the suggestion of

Mud slide destroys life and property in San Francisco

On February 6, after prolonged rains, an earth slide started in a fill in a new real estate subdivision on the eastern slope of San Francisco's Mt. Davidson district. Where the fill crosses a gulley on a steeply sloping side hill, moisture had accumulated in soft material until movement started. Before the movement stopped, more than 50,000 cu. yd. of material was involved and a 600-ft. length of Foerster Street, (illustrated at left) some distance below, was left 6 to 8 ft. deep in mud. Several residences that stood in the path of the mud flow were destroyed, causing one death and some narrow escapes.

Topography of the slope caused the moving mud to make a 90-deg. turn behind the house in the foreground of illustration at right, after which it moved several hundred feet down the sloping street, retaining a depth of 6 to 8 ft. on the pavement without encroaching upon the sidewalk. On the lower and flatter slopes the movement was slow and glacier-like, continuing an hour or more after the first surge that wrecked the houses.

the British Government, the council was merely a coordinating body until 1932 when its own spacious laboratories were opened in Ottawa. Over 200 projects now are in hand, all work being carefully correlated with similar work in Great Britain and the United States. Most notable of recent achievements has been the discovery, by a member of the council's staff, of a new method for the manufacture of magnesium.

This address set the keynote of the meeting. It was followed by C. D. Howe, Minister of Munitions and Supplies, who reviewed the work of his recently formed department. The department does all purchasing for the Canadian armed forces, a departure from normal practice that is now being followed in part by Great Britain, and is under study in the United States. Mr. Howe gave out many significant figures, most important of which were that in 1941 Canada produced more munitions of war than in all five years of the last war, and that in 1942, two and one half times as much again will be turned out. Even more surprising was the statement that in 1942 production of merchant ships in Canada will exceed that of Great Britain, work in which steel fabricating plants are playing a notable part. Twenty-five new explosive plants have been erected at a cost of $125,000,000; total cost of all new war plants being $600,000,000. Mr. Howe explained the financial arrangements being made for new plants and plant extensions, the basis being the writing off of all new plant costs during the war period.

Mr. Howe mentioned the splendid, and almost pioneer work done at one of Canada's special war plants which was described in detail at the first of the technical sessions. This is the plant of Research Enterprises, Ltd., a government-owned company established for the production of precision instruments, including the manufacture of optical glass.

Post-war reconstruction

E. M. Little, director of the Wartime Bureau of Technical Personnel, described briefly the work of his organization and outlined the challenge presented to engineers by the necessary planning of post-war reconstruction. The bureau was set up at Ottawa under the Department of Labor with the active assistance of the E. I. C. Its function is not to serve as a job-finding agency, but rather to try to supply appropriately trained men for specialized jobs in war industry. It has on file complete particulars of a large majority of all the engineers in the Dominion.

Mr. Little outlined some of the major parts of a post-war reconstruction and rehabilitation program, including public works, housing, and conservation of natural resources. He stressed the need for adequate investigation of all such projects and the need for the translation of preliminary estimates of cost into estimates of man-hours for different types and classes of workers.

Mr. Little's appeal was taken up by other speakers and supplemented by a speech by Leonard Marsh, research adviser to the federal government's committee on reconstruction, who outlined what has already been done in respect to reconstruction planning, dealing particularly with the need for all the assistance possible from engineers in doing the necessary preliminary work in planning public works for post-war construction. The complementary planning of private works was urged by two speakers, if government spending is to be kept within what were called proper bounds.

Civilian protection

Walter D. Binger, vice-chairman of the A.S.C.E. committee on civilian protection, described the results of his investigations in Great Britain in dealing with bomb damage, and air raid precautions (E.N.R. Jan. 15, 1942, p. 107). He stressed particularly the importance of attention to lighting, a matter discussed from the audience by a British engineer who gave many personal details to supplement Mr. Binger's address.

Column analysis

The only technical paper unrelated to the war was one by Prof. J. A. Van Den Broek, of the University of Michigan, on rational column analysis. Prof. Van Den Broek outlined the basis of his reasoning and stressed the fundamental concepts of statics that form the foundation of the mathematical arguments of his paper. The paper is printed in full in the *Engineering Journal* for December, 1941. It reviews generally current column design theory, and outlines a new approach to the use of Euler's equation as being all-sufficient for design work provided that suitable allowances and adjustments are made in regard to end conditions.

BUILDERS
YOU'RE FIRST ON THE JOB
In the race against time to produce more planes, more tanks, more guns, more shells and more of every kind of modern weapon, more factories are needed—*urgently*. Each new factory completed means more wheels turning. Speed the factories.
Ministry of Works

"Speed the factories"

The British Ministry of Works is using this advertisement to emphasize that construction comes first, before guns, planes or ships. Its message is appropriate for the American construction industry, too, whose job is still to speed the factories despite the recent praise of Lieut. Gen. Knudsen, who said "If buildings would win the war, Hitler would be licked now —the civil engineering profession has done a magnificient job". The advertisement was prepared by the London office of Lord & Thomas, American advertising agency, and is reproduced from a brochure containing other Lord & Thomas advertisements from Britain and titled "What life is like with the enemy less than twenty minutes away".

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Court upholds asphalt paving contractor

A tax case of unusual interest was recently brought before the circuit court at Baltimore, Md. to determine whether or not the laying of asphalt streets constitutes an illegal act of "manufacturing" in view of statutes that exempt manufacturing machinery from Baltimore's personal taxes.

The Baltimore Asphalt Block & Tile Co., against whom the suit was brought, contended that it is engaged in the manufacture of street paving, and that not only the asphalt-mixing machinery at its main plants, but also the trucks and equipment used in connection with laying the actual surfaces should be exempt under the Baltimore tax statute. The Maryland Tax Commission placed an assessment on the hauling and street surfacing machinery of the paving concern at $19,745.

The circuit court in upholding the asphalt company's claim of exemption held that, "The Baltimore Asphalt Block & Tile Co. is engaged in manufacturing from the time that the raw materials are obtained by it and suffered to undergo certain physical and technical changes in the plant of the company until the heated asphalt mixture is finally laid, rolled and shaped on the city streets; that the process of manufacturing does not end with the actual process of mixing the asphalt at the plant; and that the tools and machinery used to transport, lay and roll the asphalt mixture away from the said plant are used in connection with the manufacturing and are exempt from taxation under the Baltimore City Ordinance."

"Normandie" salvage challenges engineers

The great Navy transport *Lafayette*, formerly the luxury liner *Normandie*, lies on her side in her Hudson River slip while experts study the possibilities of salvage. The 83,000-ton vessel capsized during the early hours of Feb. 10 after tons of water had been poured into her upper decks to put out a fire, which swept through those decks during the afternoon of the previous day.

Following the fire, the Navy Department called in the Merritt Chapman & Scott Corp. to assist in studies of salvage possibilities. Because of the great size of the vessel and the fact that her sister ship, the *Paris*, still lies an abandoned wreck in a French port following a similar fire, the view is current that salvage

Press Assoc. Inc. photo

is out of the question. Against this pessimistic view stands the famous salvaging of the battleship *Maine* and the less known work of salvaging the *St. Paul* and the *Germanic*, both of which were righted after overturning at piers at New York.

When the piers at which the *Lafayette* lies were built the whole inshore area was inclosed in a great cellular cofferdam (*ENR*, Aug. 3, 1933, p. 123), which indicates that inclosing the ship in a cofferdam is not out of the question should other means for righting it prove ineffective.

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Prentis, Madigan receive 1942 Moles awards

Edmund A. Prentis, of Spencer, White & Prentis, Inc., and M. J. Madigan, now special adviser to the Under-Secretary of War, received the 1942 annual Moles award at a dinner meeting held in New York recently. More than 600 construction men and engineers attended the annual affair of the Moles organization, which is composed of men now or formerly engaged in the building of tunnels, subways, marine and other heavy construction.

Mr. Prentis, who is now in the Middle East, was given the award "in recognition of his enterprise, courage and resourcefulness, notably in underpinning, foundations, subways, tunnels, dams, mining and drydocks." Mr. Madigan received his award in recognition of "his capacity and forcefulness to conceive, design and accomplish the construction of public works, and for his contribution to the national defense."

Alexander Lyle, of the Carleton Co., Inc., was elected president of the group at the same meeting. Other officers elected included John S. MacDonald, of Walsh-Driscoll Construction Co., first vice-president, Arthur A. Johnson, second vice-president, and Ralph Atwater, of the Shultz Dredging Corp., re-elected secretary-treasurer.

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Turnpike traffic increases

Traffic on the Pennsylvania Turnpike has increased in spite of restrictions on car manufacture and tire sales, according to Walter A. Jones, chairman of the Turnpike Commission. Mr. Jones said that volume of traffic has risen 12½ percent above that of a year ago. Gasoline sales on the superhighway have shown a similar rise, although figures are not immediately available.

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Engineers praised for Philippine work

The Corps of Engineers, U. S. Army, whose picks and shovels are always bright according to its service song, but whose laurels are often lost amid praise for branches of the service which use guns and bayonets as their principal tools, has received high praise in recent dispatches from the American forces holding Bataan peninsula near Manila, P. I.

Helping to make General MacArthur's maneuvers possible, engineers have built and destroyed hundreds of bridges, strung miles of barbed wire, put down improvised land mines, and constructed roads from buffalo trails. Engineer detachments under Col. Harry Skerry, of Portland, Ore., have demolished 184 bridges in northern Luzon alone. Much of the work was done under enemy fire.

Odd jobs include a recent assignment to blast out a small Japanese force which landed behind the American lines and took refuge in caves along the beach. The engineers dropped generous portions of dynamite over a ledge into the largest of the caves, and followed up by systematic destriction of other hideouts. Total engineering loss—one; total enemy loss—entire detachment killed or captured.

Important posts go to water supply men

Capen heads New Jersey system, Finch becomes assistant chief at Indianapolis and McLaughlin is Philadelphia head.

Charles H. Capen, former staff engineer of the North Jersey Water Supply Commission, was appointed chief engineer and administrative head of that body on Feb. 10. He is the first to hold the title of chief engineer since the Wanaque water system — which supplies eight communities in northeast New Jersey — was completed eleven years ago. Until now the administrative control had been in the hands of the superintendent or business manager. Mr. Capen, a graduate of Cornell University, recently had been on a leave of absence from the commission to serve as principal sanitary engineer of the U. S. Engineer Department in the Second Corps Area. In 1941 he was chairman of the New Jersey Section of the American Water Works Association.

Lewis S. Finch, civil engineer, has been named assistant chief engineer of the Indianapolis (Ind.) Water Co., replacing the late Homer Rupard. After graduating from Purdue University in 1921, Mr. Finch was employed on various engineering projects, and in 1925 was made chief engineer of the Indiana State Board of Health. Resigning from the board of health post in 1933 he entered private practice, specializing in municipal waterworks and sewerage installations. He was engineer for the original water system for Charleston, Ind., in 1935, and designed additional facilities recently put into operation to supply water for the Charleston powder plant. In 1933 he was made president of the Indiana Section of the American Water Works Association, and in 1933 served as president of the Indiana Engineering Society.

Martin J. McLaughlin, formerly director of the Philadelphia Public Works department and of the city's municipal airport, has been appointed as chief of the Philadelphia water bureau. Mr. McLaughlin replaces Seth Van Loan, who recently was transferred to take active charge of an $18,000,000 water improvement work.

OBITUARY

August Ziesing, retired president of the American Bridge Co., a United States Steel Corp. subsidiary, died Feb. 16 at his home in Glencoe, Ill. He was 83 years old. During his term as president, from 1905 until his retirement in 1927, the company fabricated or erected the Woolworth and American Telephone & Telegraph buildings in New York, the Tribune Tower and the Stevens Hotel in Chicago and the Union Trust building in Cleveland. Born in Peru, Ill., and a graduate of the University of Illinois as a civil engineer, Mr. Ziesing began his career as a draftsman for the Pennsylvania Railroad and after two years was made assistant engineer in charge of operations. He was associated with the Lassig Bridge & Iron Works in Chicago and conducted a private practice as a consulting engineer for five years, specializing in railroad structures. The Hell Gate and Williamsburg bridges in New York were fabricated and constructed under his supervision. During the World War, the American Bridge Co. built an ordnance plant at Gary, Ind., and fabricated approximately half of the structural material used in construction of the merchant marine fleet by the Emergency Fleet Corp.

Dr. Ernest L. Ohle, head of the department of mechanical engineering at Washington University, St. Louis, Mo., for 33 years, died Feb. 15 at the age of 66.

William L. Kuehnle, 60, principal engineer of the U. S. army district engineer's office in Tulsa, Okla., was killed Feb. 8 in an automobile accident near Watonga, Okla.

Clarence Hill, 74, retired tile and drainage engineer, died Feb. 9 in Fremont, Ohio.

Curtis E. Knickerbocker, 74, retired engineer who had specialized in bridge building and railroad construction and was chief engineer of the New York, Ontario & Western Railroad from 1903 to 1910, died at his residence in New York last week.

William Barnum Cowles, 87, widely known consulting engineer, died Feb. 9 at Cleveland, Ohio. A graduate of the United States Naval Academy at Annapolis, Mr. Cowles served as assistant to the chief engineer of the Boston Navy Yard, and resigned his navy commission in 1880. He was the inventor of the "long arm," a device used on ships to make bulkheads tight.

George W. Rear, 70, engineer of bridges for the Southern Pacific Railroad Co., died in San Francisco Feb. 10. He was a native of Ontario, Canada, was educated at Campbellford Collegiate Institute of Canada, and was employed by the Midland Railroad and the Grand Trunk Railroad of Canada before joining the Southern Pacific Co. 41 years ago as bridge foreman.

James Samuel Barrowman, 70, former engineer for the Waycross, Ga., water department, died Feb. 9 at Miami, Fla.

A. F. Byers, 64, well known Canadian construction engineer, died Feb. 8 at Quebec. He was the founder of the firm of A. F. Byers & Co., Ltd., construction engineers, and was a former mayor of the town of Hampstead, Ont.

Abel Reynolds, 71, general manager and treasurer of the New England Water, Light & Power Co., of Providence, R. I., died at his home in Providence on Feb. 12. Mr. Reynolds had been for many years treasurer and a director of the New England Water Works Association.

Louis E. Guyott, president and treasurer of the Guyott Construction Co. of New Haven, Conn., died Feb. 14 at New Haven. He was 46 years old.

CONTRACTS AND CAPITAL

HEAVY ENGINEERING construction volume for the short week due to the Lincoln's Birthday holiday totals **$102,218,000, the** fifth consecutive week in which the volume topped the **$100,000,000-mark.** The current week's construction compares with $104,893,000 for the preceding week, and $114,981,000 for the 1941 week.

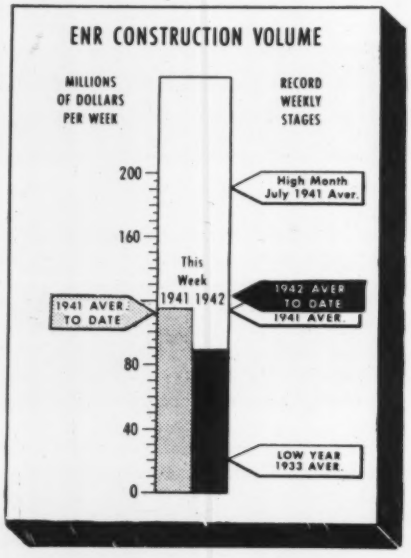
Private construction turned sharply upward, reaching $26,690,000, the highest total reported since the week of December 11, 1941. Public volume, $75,528,000, compares with $96,950,000 reported for last week, and $81,615,000 for the week last year.

The current week's total brings 1942 construction to $996,981,000, an increase of 12 percent over the volume reported for the opening eight-week period last year. Private work, $107,401,000, is 61 percent below a year ago, but public is 45 percent higher as a result of the 86 percent gain in federal work.

In the classified construction groups, gains over the preceding week are in commercial, industrial and public buildings, streets and roads, and unclassified construction. Public building is the only class of work to report an increase over a year ago.

New capital for construction purposes for the week totals $264,602,000. This compares with $37,018,000 for the corresponding week last year. The week's new financing total is made up of $710,000 in state and municipal bond sales, $642,000 in corporate security issues, and $263,250,000 in federal appropriations for government plant construction.

New construction financing for the year to date totals $1,369,231,000, an increase of 110 percent over the $653,833,000 for the eight-week period last year.



CONTRACTS

(Thousands of dollars)

	Week Ending Feb. 20 1941	Feb. 12 1942	Feb. 19 1942
Federal	$58,236	$85,149	$62,995
State & Municipal	23,379	11,801	12,533
Total public	$81,615	$96,950	$75,528
Total private	33,366	7,943	26,690
TOTALS	$114,981	$104,893	$102,218
Cumulative 1942 (8 weeks)			$996,981
1941 (8 weeks)			$889,617

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1941 8 weeks	1942 8 weeks
NON-FEDERAL	$144,833	$127,276
Corp. Securities	46,294	28,832
State & Mun.	71,398	84,615
U.S.H.A. loans	13,521	.....
R.F.C. loans	13,620	13,829
FEDERAL	$509,000	$1,241,955
TOTAL CAPITAL	$653,833	$1,369,231

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Feb. '42	269.41	129.51
Building Cost	Feb. '42	218.44	118.98
Volume	Jan. '42	503	221

FHA MORTGAGES

	Week Ending Feb. 15 1941	Feb. 7 1942	Feb. 14 1942
Selected for appraisal			
Title II	$22,919	$14,840	$16,778*
Title VI	.....	$17,490	$20,162*

* Subject to revision.

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

SEWER IMPROVEMENTS CORPUS CHRISTI, TEXAS

OWNER: City of Corpus Christi, Tex., and Defense Public Works Division of the Federal Works Agency. Myers & Noyes, Corpus Christi, engineers.

PROJECT: Construction of an activated sludge sewage disposal plant, and 77,000 feet of 6- to 24-in. storm and sanitary sewers in Corpus Christi, Tex. Depths of sewer lines range from 0 to 20 feet.

CONDITIONS: Contractor to furnish all materials. Rail, highway and water transportation facilities available. Delays in delivery of strategic items prevalent at this time may occasion increased costs. Wage rates are: skilled labor, $1.00 to $2.00 per hr.; semi-skilled, 50 to 60c.; and common labor, 40 to 50c. per hr.

BIDS: Four bids were received January 22, 1942 on all of the items listed below. They range from the low of $483,984 to $586,845.

LIST OF BIDDERS:

1. Brown & Root, Corpus Christi and Austin, Tex. (low bidder) $483,984
2. J. DePuy & Sons, San Antonio, Tex. 519,799
3. W. G. Cullum Co., Dallas, Tex. 536,375
4. Sherman Machine & Iron Works, Oklahoma City, Okla. 562,678
5. E. L. Dalton, Dallas, Tex. 586,845

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Re-lift pump station	L. S.	$25,855.00	$25,355.00	$37,245.00
2. Sewage disposal plant	L. S.	253,222.00	256,720.00	268,735.00
3. 24-in. vit. tile pipe, 0-6-ft. deep	520 l. f.	6.17	6.70	6.85
4. 24-in. vit. tile pipe, 6-8-ft. deep	80 l. f.	6.32	6.75	6.90
5. 24-in. vit. tile pipe, 8-10-ft. deep	55 l. f.	6.50	7.05	7.10
6. 24-in. vit. tile pipe, 10-12-ft. deep	75 l.f.	6.83	7.30	7.40
7. 24-in. vit. tile pipe, 12-14-ft. deep	165 l. f.	6.97	7.38	6.75
8. 24-in. vit. tile pipe, 14-16-ft. deep	505 l. f.	7.22	7.45	6.10
9. 24-in. vit. tile pipe, 16-18-ft. deep	300 l. f.	7.45	7.60	6.78
10. 24-in. vit. tile pipe, 18-20-ft. deep	300 l. f.	5.89	7.65	6.85
11. 21-in. vit. tile pipe, 6-8-ft. deep	930 l. f.	4.22	4.42	4.40
12. 21-in. vit. tile pipe, 8-10-ft. deep	6,020 l. f.	4.31	4.43	4.56
13. 21-in. vit. tile pipe, 10-12-ft. deep	4,800 l. f.	4.41	4.78	4.65
14. 21-in. vit. tile pipe, 12-14-ft. deep	1,100 l. f.	4.48	4.90	4.80
15. 21-in. vit. tile pipe, 14-16-ft. deep	4,550 l. f.	4.50	5.03	4.92
16. 21-in. vit. tile pipe, 16-18-ft. deep	400 l. f.	4.67	5.30	5.20
17. 18-in. vit. tile pipe, 10-12-ft. deep	550 l. f.	3.23	3.62	3.60
18. 18-in. vit. tile pipe, 12-14-ft. deep	650 l. f.	3.30	3.80	3.72
19. 18-in. vit. tile pipe, 14-16-ft. deep	1,400 l. f.	3.45	3.96	3.85
20. 15-in. vit. tile pipe, 14-16-ft. deep	1,800 l. f.	2.91	3.34	3.30
21. 12-in. vit. tile pipe, 10-12-ft. deep	1,400 l. f.	1.67	1.96	1.92
22. 12-in. vit. tile pipe, 12-14-ft. deep	1,300 l. f.	1.85	2.07	2.05
23. 12-in. vit. tile pipe, 6-8-ft. pipe	50 l. f.	1.55	1.78	1.74
24. 12-in. vit. tile pipe, 8-10-ft. deep	50 l. f.	1.60	1.92	1.83
25. 12-in. vit. tile pipe, 10-12-ft. deep	700 l. f.	1.70	2.00	1.95
26. 12-in. vit. tile pipe, 12-14-ft. deep	400 l. f.	1.85	2.01	2.00
27. 10-in. vit. tile pipe, 6-8-ft. deep	100 l. f.	1.20	1.35	1.34
28. 10-in. vit. tile pipe, 8-10-ft. deep	100 l. f.	1.25	1.40	1.40
29. 10-in. vit. tile pipe, 10-12-ft. deep	6,000 l. f.	1.33	1.55	1.48
30. 10-in. vit. tile pipe, 12-14-ft. deep	4,000 l. f.	1.46	1.67	1.65
31. 10-in. vit. tile pipe, 14-16-ft. deep	100 l. f.	1.65	1.85	1.85
32. 10-in. vit. tile pipe, 16-18-ft. deep	100 l. f.	1.80	2.05	2.00
33. 8-in. vit. tile pipe, 0-6-ft. deep	2,000 l. f.	.93	1.08	1.05
34. 8-in. vit. tile pipe, 6-8-ft. deep	9,000 l. f.	.97	1.12	1.10
35. 8-in. vit. tile pipe, 8-10-ft. deep	4,000 l. f.	1.05	1.21	1.18
36. 8-in. vit. tile pipe, 10-12-ft. deep	2,000 l. f.	1.15	1.36	1.32
37. 8-in. vit. tile pipe, 12-14-ft. deep	400 l. f.	1.36	1.54	1.50
38. 8-in. vit. tile pipe, 14-16-ft. deep	400 l. f.	1.52	1.70	1.65
39. 8-in. vit. tile pipe, 16-18-ft. deep	100 l. f.	1.70	1.90	1.85
40. 6-in. vit. tile pipe, 0-6-ft. deep	11,000 l. f.	.65	.80	.76
41. 6-in. vit. tile pipe, 6-8-ft. deep	10,000 l. f.	.75	.85	.80
42. 6-in. vit. tile pipe, 8-10-ft. deep	200 l. f.	.77	.95	.85
43. Class A concrete	10 c. y.	35.00	35.00	29.50
44. Class B concrete	260 c. y.	20.00	21.00	19.50
45. Class C concrete	800 c. y.	10.25	16.75	16.00
46. Manholes, 0 to 6-ft. deep	70 ea.	72.50	85.00	85.00
47. Manholes, extra depth	350 ft.	11.60	15.00	12.00
48. Sheeting	1 M bm.	75.00	110.00	112.50
49. Cleanouts	65 ea.	17.40	18.50	18.75
50. Drop manholes, 0 to 6-ft. deep	10 ea.	82.00	100.00	95.00
51. Drop manholes, extra depth	60 ft.	13.50	17.50	16.50
52. 6-in. vit. tile pipe, 10-12-ft. deep	200 l. f.	.90	.90	.95
53. 6-in. vit. tile pipe, 12-14-ft. deep	200 l. f.	1.10	1.10	1.15
54. 6-in. valves	5 ea.	56.00	70.00	67.20
55. Fire hydrants	2 ea.	103.00	140.50	143.30
56. Reinforcing steel	25,000 lb.	.06	.10	.095
57. Shell	2,100 c. y.	2.50	2.85	2.81
58. 6-in. water line, c.i.p	4,600 l. f.	1.72	2.15	2.02
59. Cedar piling	1,000 l. f.	1.00	1.75	1.71
60. Earthwork on road	5,000 c. y.	.35	.50	.46
61. Earthwork on outfall ditch	5,000 c. y.	.25	.48	.44

SEWERAGE TUNNEL CLEVELAND, OHIO

OWNER: City of Cleveland, J. C. Wenrick, city engineer.

PROJECT: Construction of sewerage diversion tunnel for oil and waste materials in Kingsbury Run from Cuyahoga River to East 37th St., Cleveland, Ohio. Maximum depth, 80-ft.; average depth, 40-ft.

CONDITIONS: Contractor to furnish all materials and complete work in 225 working days. Rail, highway and water transportation facilities available near site of work. Wage rates are: skilled labor, $1.50 per hr.; semi-skilled, $1.25; and common, $1.00.

BIDS: Six bids were received November 6, 1941, ranging from the contract low of $451,195 to $569,020.

LIST OF BIDDERS:

1. The Kalill Co., Cleveland, Ohio (contract) $451,195
2. Square Construction Co., Cleveland, Ohio 513,870
3. Curro Construction Co., Cleveland, Ohio 543,253
4. Domenic Nero Constr. Co., Cleveland, Ohio 554,600
5. Christopher & Co., Inc., Cleveland, Ohio 563,199
6. National Construction Co., Cleveland, Ohio 569,020

Item	Quan.	Unit Prices (1)	(2)	(3)
Section No. 1				
1. Increaser from 14'10"x9' to 16'x8'	10 l.f.	$140.00	$200.00	$170.00
2. 14'10"x9' rein. conc. culvert	73 l.f.	135.00	175.00	170.00
3. No. 5 "C" brick sewer	44 l.f.	100.00	30.00	20.00
4. No. 4 "C" brick sewer	28 l.f.	90.00	20.00	20.00
5. Manhole on conc. culvert (Item 2)	1 ea.	300.00	100.00	150.00
6. Std. manhole on No. 5 sewer	1 ea.	250.00	100.00	150.00
7. Make connection to culvert under B. & O. RR tracks	1 ea.	125.00	1,000.00	250.00
8. Make conn. to Broadway sewers	2 ea.	125.00	50.00	50.00
Section No. 2				
9. Reducer from 14'10" circ. brick sewer to 14'10"x9' rein. box culvert	20 l.f.	140.00	200.00	170.00
10. Increaser from 14'10"x9' box culv. to 14'10" circ. brick sewer	20 l.f.	140.00	200.00	170.00
11. 14'10"x9' rein. conc. culvert near Broadway	188 l.f.	140.00	175.00	170.00
12. 14'10"x9' rein. conc. culv. near E. 34 St.	71 l.f.	140.00	110.00	170.00
13. 14'10" circ. 4-ring brick sewer in tunnel	1,741 l.f.	118.00	175.00	167.50
14. Steel tunnel liner plates	809 ton	120.00	90.00	92.00
15. 14'10" circ. brick sewer in open cut	46 l.f.	140.00	100.00	170.00
16. Manhole (No. 2) on rein. conc. culv.	1 ea.	350.00	100.00	150.00
17. Special manhole (No. 3)	1 ea.	5,500.00	3,000.00	5,500.00
18. 4'x7' rein. conc. stub and brick bulkhead	1 ea.	50.00	200.00	125.00
19. Std. inlet basin	1 ea.	60.00	80.00	100.00
20. 12" catch basin pipe, incl. excav. and backfill	10 l.f.	2.00	6.00	3.00
21. Brick bulkhead in Kingsbury Run	1 ea.	75.00	120.00	1,000.00
Section No. 3				
22. 14'10"x9' rein. conc. culvert	515 l.f.	135.00	110.00	170.00
23. Junction chamber, complete	1 ea.	1,500.00	2,000.00	3,000.00
24. 12'x9' rein. conc. stub, incl. temp. brick bulkhead	4 l.f.	100.00	100.00	150.00
25. 10'x9' rein. conc. culvert	21 l.f.	136.00	80.00	170.00
26. Spec. manhole with open grate cover	1 ea.	400.00	100.00	150.00
27. Spec. manhole on 10'x9' rein. conc. culv. with open grate cover	1 ea.	350.00	100.00	150.00
28. Connection to culvert at E. 37th St.	1 ea.	100.00	300.00	250.00
29. Standard inlet basin	1 ea.	60.00	100.00	100.00
30. 12" catch basin, complete	10 l.f.	2.00	10.00	3.00
31. 6" vitrified pipe	10 l.f.	.50	5.00	2.50
32. 8" vitrified pipe	10 l.f.	.60	8.00	2.75

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, Manager *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

Location of ENR Correspondents

Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Named in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges, Grade Cross'gs
Streets & Roads
Earthwork, Waterways
Unclassified
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads):

BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Note: To comply with censorship requirements, addresses on some reports are being generalized. Data which would reveal the purpose of the improvements and the size are withheld. The name of contractor and general area are reported.

WATER SUPPLY

PROPOSED WORK

★**Calif., San Francisco**—City and San Francisco Co., steam pump plant, Lake Merced. $1,250,000.

Conn., Greenwich—Town, W. M. Peck, first selectman, Town Hall, preliminary plans WW sys., North Mianus. $35,000.

Ill., Franklin Park—Elevated tank, watermain extens., sewers, pump. station, to serve 80 acres Westbrook Subdivision. Over $25,000. W. L. Ashdown, Chicago Heights, engr.

Ind., Columbus—Bd. P. Wks., F. C. Owens, mayor, chn., City Hall, preliminary surveys WW imprvs., exten. $300,000. Greeley & Hansen, 6 N. Michigan Ave., Chicago, Ill., engrs.

Ind., Decatur—C. Brodbeck, supt. Municipal Water Works, filtration plant addn., new equip., lines. $25,000.

N. C., Jefferson—I. T. Johnson, mayor, new water sys.

★**N. C., Wilmington**—Tapping Cape Fear River, Kings Bluff, as source municipal water supply, filtration plant, etc. $2,400,000. W. C. Olsen, 5 Exchange Pl., Raleigh, engr.

O., Cleveland—Watermain exten. in Richmond Rd., to Fanhurst and Emery Rds. $25,000. J. C. Wenrick, city engr.

O., Columbus—G. Clements, city service dir., preliminary plans, mains. $100,000.

O., Youngstown—Mahoning Co., 10,200 ft. 8 in. watermain from Meridan Rd. to Mahoning County Tuberculosis Hospital and residents in Kirk Rd. area. $40,000-$50,000. Applied to WPA. A. Coope, co. sanitary engr.

Pa., Erie—Bureau Water, J. S. Dunwoody, supt., 701 French St., WW imprvs., replacements. $100,000. Bids Feb. 24 for pipe. A. N. Aitkin, city engr.

Tenn., Winchester—J. Davis, mayor, reservoir, water distr. sys. $100,000. W. L. Picton, Amer. Natl. Bank Bldg., Nashville, engr. CD 2/4—ENR 2/12.

†**Tex., Arlington**—Bids soon WW sys. exten., imprvs., Tex. 41-219. $47,000. **DPW.** Myers & Noyes, Tower Petroleum Bldg., Dallas, engrs. CD 1/30—ENR 2/5.

Tex., Hawkins—C. W. Cumbie, mayor, rejected bids Jan. 31, WW sys. $55,000. Albert C. Moore & Co., 2404 Smith-Young Tower, San Antonio, engrs. CD 1/23—ENR 1/15.

BIDS ASKED

Bids Asked February 24

†**Mass., Fall River**—City, Waterworks Dpt., City Hall, pipeline, pump. sta., Docket Mass. 19-101. $410,365. **DPW.** Extended date. Hayden, Harding & Buchanan, 622 Park Sq. Bldg., Boston, engrs. CD 2/3—ENR 2/5.

†**S. C., Charleston**—At office The John McCrady Co., engrs., 9 State St., WW extens., St. Philip's and St. Michael's Parish, Charleston Co., for St. Philip's and St. Michael's Pub. Serv. Dist. Comn., Docket S.C. 38-151. **DPW.** CD 1/7—ENR 1/15.

Bids Asked February 26

†**Ind., Kingsbury**—Town, WW sys., Docket Ind. 12-115. $60,000. **DPW.** Phelps & Peck, Brinckman Bldg., Michigan City, consult. engrs. CD 9/19—ENR 9/25.

★†**N. C., Wilmington**—WW exten. $1,226,000 **DPW** gr. CD 12/5—ENR 12/11.

S. C., Greenville—Parker Water & Sewer Sub. Dist., at Assembly Room, Chamber of Commerce Bldg., 60,832 ft. 6- to 16-in. c.i. watermains, 25 tons fittings, 165 hydrants, valves, etc. J. E. Sirrine & Co., Box 960, engrs.

Bids Asked About February 27

†**N. M., Alamogordo**—U. S. Eng., Albuquerque, 10 mi. welded steel pipe, underground storage tank, rein.-con., automatic chlorinating equip.

Bids Asked About March 1

S. C., Charleston — Comrs. Pub. Wks., Charleston, exten. water sys. into St. Andrews Parish. $100,000. John McCrady, 9 State St., engr.

Bids Asked March 2

†**Conn., New London**—Office City Purchasing Agent, Municipal Bldg., water supply and distr. sys. addns. **DPW** Project 61-126. J. W. Sheedy, city mgr.; adv. ENR 2/19. CD 2/3—ENR 2/5.

Bids Asked About March 6

★†**Mass., Springfield** — City, Water Dpt., 40,000 ft. 50 in. Pipeline 2 from West Parish Filters, Mundale, to Province Mountain Reservoir, Docket Mass. 19-106. $1,000,000. **DPW.** E. Lockridge, ch. engr. Water Bd. CD 12/10—ENR 12/18.

Bids Asked March 15

†**Md., Aberdeen**—U. S. Eng., Standard Oil Bldg., Baltimore, water supply, sewerage sys., U. S. Proving Grounds. $150,000.

Bids Asked About April 1

Ia., Oelwein—H. Finder, city clk., imprv. water plant. $40,000. E. E. Schenk, 214 Waterloo Bldg., Waterloo, engr. CD 11/6—ENR 11/13.

LOW BIDDERS

†**Calif., San Louis Obispo**—City, Feb. 10, water distr. sys., Docket 4-151, Unit 4, Contr. 1, from F. C. Stolte Co., 1405 San Antonio Ave., Alameda. **$44,572. DPW.**

†**N. C., Bonnie Doone**—Town, Feb. 9, water distr. sys., Docket N.C. 31-159, from Boyd & Goforth, Inc., 617 N. Smith St., Charlotte. **$44,800. DPW.** P. M. Van Camp, Southern Pines, engr. CD 10/16—ENR 10/23.

†**N. C., Spring Lake**—Spring Lake Sanitary Dist., Feb. 9, water distr. sys., Docket N.C. 31-145, from Boyd & Goforth, Inc., 617 N. Smith St., Charlotte. **$74,100. DPW.** P. M. Van Camp, Southern Pines, engr.

†**Tex., Pasadena** — City, D. L. Atkinson, mayor, Feb. 6, WW and sewer exten., imprvs., Tex. 41-246, from Tellepsen Const. Co., 3900 Clay Ave., Houston. **$357,290.** Est. $532,699. **DPW.** CD 1/27—ENR 1/29.

CONTRACTS AWARDED

Ia., Meicher—O. E. Braser, city clk., WW sys., **WPA. $30,000.** R. W. Gearhart, 349 21 St. S.E., Cedar Rapids, engr.

Ia., Orleans—E. E. Holtz, city clk., WW imprvs. **WPA. $39,261.**

†**Mass., New Bedford**—U. S. Eng., 819 Industrial Trust Bldg., Providence, R. I., WW sys., Inv. 699-42-100, to J. Williams, 8 Beechwood St., Dorchester. **$15,647.** Bids 2/3. CD 2/5.

Wash., Everett — S. F. Spencer, mayor, imprv. water supply sys. **WPA. $91,947.** G. G. Paine, City Hall, engr. CD 2/2—ENR 2/5.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Calif., Walnut Creek—Revised plans vitr. sewer exten. Pringle Addn. Bids 2/4 rejected. C. P. Martin, San Leandro, engr. CD 1/19—ENR 1/22, under BA.

Ill., Chicago—Cook Co., storm sewer Volbrecht Rd. and 203 St. $51,000. G. H. Baker, Centennial Bldg., Springfield, state engr. co road and city streets.

Neb., Norfolk—A. O. Hazen, city clk., preliminary surveys sewage disposal sys. $50,000. Burns & McDonnell Eng. Co., 107 W. Linwood Blvd., Kansas City, Mo., engrs. CD 3/5—ENR 3/13.

★**N. Y., Brooklyn**—President Brooklyn Boro, Boro Hall, sewers, Avenue U, vicinity. $2,000,000; Avenue J $150,000; Avenue K $120,000.

★**N. Y., Brooklyn**—President Brooklyn Boro, Boro Hall, sewers, Flatbush Ave., $150,000; Avenue K, $320,000; Sterling Pl., $250,000.

N. Y., New York—President Bronx Boro, 851 Grand Concourse, storm water sewer, E. 222 St., Bronx Boro. $486,000.

N. Y., New York—President Bronx Boro, 851 Grand Concourse, storm water sewer E. 223 St. $191,000.

O., Medina—Relief sewerage sys., own forces. $65,000. E. D. Barstown, Medina, engr.

O., Washington C. H.—Treating unit for sewage disposal plant. $125,000. Awaiting WPA approval.

†**Tex., Rockport**—City, c/o J. E. Moore, mayor, bids soon, sanitary sewerage sys., Docket Tex. 41-197. $81,000. DPW. M. C. St. John, 4101 Polk Ave., Houston, engr. CD 8/13—ENR 8/21.

Wis., North Freedom—F. Krause, village clk., sewage treatment plant, sewerage sys. $60,000. Applied for DPW grant.

BIDS ASKED

Bids Asked February 25

N. Y., New York—President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, sewer, appurtenances, Lawton Ave., sheet asphalt on concrete paving Starling Ave., etc.

Bids Asked February 26

†**Ind., Kingsbury**—Town, sewage treatment plant, Docket Ind. 12-114. **DPW.** Phelps & Peck, Brinckman Bldg., Michigan City, consult. engrs. CD 9/30—ENR 10/2.

Bids Asked March 3

†**Tex., Galveston**—City, c/o B. Harris, mayor, incinerator, Tex. 41-245. $118,000. **DPW.** H. E. Burns, 4139 Normandy St., Dallas, engrs. CD 12/10—ENR 12/18.

LOW BIDDERS

Calif., Los Angeles—Los Angeles Co., Hall of Records, Feb. 10, sanitary sewers, 166 St., etc., from Sutalo & Ramljak, 249 W. Mission St., San Gabriel. **$78,940.** Est. $56,199. CD 1/19—ENR 1/22.

Calif., Salinas—Directors Alisal Sanitary Dist., 627 E. Alisal St., Feb. 3, sewage treatment plant, from F. C. Stolte Co., 203 Pine St., San Francisco, **$129,300.** CD 1/13—ENR 1/15.

Calif., San Francisco—S. J. Hester, secy. Dpt. P. Wks., City Hall, Feb. 4, Lincoln Way storm drain, for City and San Francisco Co., from Eaton & Smith, 715 Ocean Ave., **$192,703.** CD 1/22.

†**Fla., Orlando**—City, W. Beardall, City Hall, incinerator, from Boyd & Goforth, Box 2072, Charlotte, N. C. **$69,800. DPW.** CD 11/25—ENR 11/27.

†**Md., Hyattsville** — Washington Suburban Sanitary Comn., Hamilton St., Feb. 4, 7,355 ft. 8 to 24-in. vitr. sewers. **DPW.** Project Md.